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ABSTRACT

This study attempted to develop a reliable and valid instrument for measuring the diagnostic and remedial capacity of primary schools and to apply this instrument in examining how special needs services are provided in ordinary primary schools in the Dutch speaking part of Belgium. The study's conceptual model was based on two clusters--the key players (the individual teacher, the school team, and the principal) and the dimensions present for key players (organizational characteristics, opinions and beliefs, and activities). The developed questionnaire is intended to evaluate services at both the class and school levels and contains variables in the nine cells resulting from the combination of the two cluster groups. A stratified sample of 104 schools participated with questionnaires returned from 844 teachers, principals, and remedial teachers. Analysis of the questionnaire's validity and reliability was conducted and the individual scales were judged to be both reliable and valid. Additionally, the questionnaire was standardized both relative to the reference group of schools and to absolute standards determined by educational inspectors. The questionnaire is recommended as part of a full, school-based review of educational practice and policy concerning provision of diagnostic and remedial services for special needs students. (Contains 51 references.) (DB)

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THE DIAGNOSTIC AND REMEDIAL CAPACITY OF PRIMARY SCHOOLS

Development of the questionnaire 'Care for pupils with learning problems'

Paper presented at the EARLI-conference
Athens, 26-30 August, 1997

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1. Background and aims

During the last decade, more and more education experts hold the conviction that ordinary education should pay more attention to children with learning problems (Meijer, Pijl, & Hegarty, 1994). This conviction is based upon several observations. First, there are the high repeater rates in primary and secondary education (OESO-report, 1991; Van Damme, 1992-1993, 1993; Vlaamse Onderwijsraad, Vl.O.R., 1993). Secondly, the number of referrals to special schools continues to rise (Ghesquière, De Fever, & Van Hove, 1996; OESO-report, 1991; Van Dun, 1990; Van Dun & Ruijssenaars, 1991). Finally, there is a growth of out-of-school forms of help for pupils with educational and learning problems. Because of these alarming reports about school failure of children in primary and secondary education, creating or extending special needs provisions becomes a major task for ordinary schools. This assignment depends on the capacity of the school team to detect, to analyse and, if necessary, to remedy learning problems.
This capacity is closely related to the notions of special needs provision in ordinary schools and to extending that special needs provision. By this, we mean the adaptation and the broadening of the attention and the actions of the school to give maximum possibilities to every pupil to develop optimally (see 2.1 Extending special needs provision). Extending the special needs provision is an essential task of education and is very closely linked with the ability of the school team to detect, to determine and if necessary to remedy educational and learning problems. The diagnostic and remedial capacity determines the actual possibilities, but also the boundaries of the special needs provision.
It is important to obtain a clear picture of the way schools help their pupils with learning problems. Still, before we can gain insight in the way the special needs provision is implemented, we have to develop a reliable and valid instrument in order to measure the actual diagnostic and remedial capacity of a school.

In view of these observations, our study has two major objectives. The first one is to develop a reliable and valid instrument for measuring the diagnostic and remedial capacity of primary schools. Therefore, a large part of our study is of a psychometric nature. The second objective is to make some statements about the way the special needs provision is developed in ordinary primary schools. Here, we will look at the relation between some main background characteristics of the school, the principal, the teachers, and pupils and the way the care for children with educational problems has been implemented in this school. Consequently, this part of the study is descriptive. The survey is limited to primary schools.
This instrument should make it possible to collect information on a great number of schools (i.e. primary schools in the Dutch speaking part of Belgium) for periodic assessment purposes as well as to describe one school in reference to all the primary schools (the population). Therefore, it is necessary to establish norms for the population of primary schools. Although it is not an explicit aim of our study, this instrument could be useful for making a description of the strong and weak points of one specific school regarding care for children with educational problems. It may be a starting point for schools and school advisory services or educational guidance centres to find some indications and to make some suggestions in order to analyse their local school policy and to enhance their diagnostic and remedial capacity.

2. Conceptual framework

The development of a questionnaire should be based upon a conceptual framework that reflects the different aspects that should be present in primary schools in order to help children with educational problems. Such a framework offers a basis for the choice of the variables that should be present in the instrument (2.2). First, we will examine some elements of the special needs provision in a primary school (2.1).

2.1 Extending special needs provision

2.1.1 Definition

More and more attention is given to the idea that every primary school should create optimal conditions for *every* pupil. This brings us to a new point of interest for schools, which is: how can a school, by its organizational and its pedagogical and teaching activities, give maximal possibilities to all pupils, in spite of the differences in their background and abilities (Stokking, 1992; Vl.O.R.-Forum Basisonderwijs, 1994).

This study, where we are interested in the diagnostic and remedial capacity of primary schools, is closely linked to the general policy expectation that every school should extend the special needs provision. The high rates of repeaters, the rising number of referrals to special education and het growth of out-of-school forms of help indicate the need for in school extension of the special needs provision (see 1.1 Background and aims) (Vl.O.R., 1993). There is a growing awareness of the significance and necessity for extending special needs provision in primary education. The Flemish Education Council defines this notion in an invitation for a forum on primary education (1994) as follows[1]:

> Special needs provision is the way by which the teacher and the school organize the education, so that each child gets maximal possibilities to develop optimally, taking into account the large differences among children. Extending special needs provision is the change, adjustment, broadening, enhancement of the attention that the school community devotes to this.

The Dutch Advisory Council for Primary and Special Education gives the following definition (ARBO, 1984)[2]:

> The extension and reinforcement of the procedures and activities, especially on school and group level, creating a high degree of special care for pupils, in particular for those who have specific pedagogical-didactical needs, so that they may attain the by a school determined goals and intermediate goals in a certain amount of time. (p. 21)

Extending special needs provision in an ordinary primary school refers to an innovation process aiming at the realization of a school and class climate, an adapted way of working and a set of educational provisions in order to provide and if necessary to extend legitimated educational and teaching activities for children with learning problems (Verhaeghe, Cnudde & Vansieleghem, 1996). In summary, extending special needs provision means the development of an education for all children according to their abilities (den Dulk, 1994). Bringing all pupils to their highest level of development possible (cognitive, socially, emotionally),

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[1] Our translation.

[2] Our translation.

is in this perspective considered as an important goal of contemporary education. This goal contains two essential aspects. First, extending special needs provision can be considered as broadening the attention for more pupils, especially those pupils that have educational problems. In this case, there is an extension regarding the number of pupils. A concern is expressed for all children, not only for the average pupil. In other words, this means that the focus of attention should be more on those children that drop out or tend to drop out in ordinary education. Secondly, extending special needs provision also means giving attention to all developmental domains, not only the cognitive one. In other words, schools should not only stimulate the cognitive abilities, but also other abilities and skills (e.g. social and emotional) (Laevers, 1994).
Both aspects are complementary. Learning problems can very well cause social-emotional problems and vice versa. This means that if one wants to extend the special needs provision in order to help more pupils, one has also to spend more attention to other domains than the cognitive one. Creating special needs provision means the development of a well-balanced education.

2.1.2 Extending special needs provision on the school and the classroom level

The realization of the extension of special needs provision depends first on the actions of the individual teacher in the classroom. This means that each teacher must be able to detect, to determine and to remedy pedagogical-didactical problems.
The first step is the *detection* of problems. This demands a sensitivity for the abilities of a pupil and demands an active attitude to search for signs, characterizing learning en behavioural performances that indicate a disrupted or an endangered development (Melis, 1985). In a next step, one has to determine and *analyse* those problems with pupils who do not perform according to the expectations. This step can be characterized as the analysis of the nature of the problem. Once the nature of the problem is determined, means have to be found to solve or *remedy* the problem. On the basis of these insights an intervention plan is set up in order to treat or to reduce the problem to a minimum level (Gillijns & de Ponti, 1992; Huistra, 1980; van Kuyk, 1992). In any case, the actions of the teacher should be evaluated. An evaluation by observations and/or tests shows if the diagnose was right and/or if the treatment were feasible and adequate.

Secondly, the realization of the extension of special needs provision not only depends on the efforts of the individual teacher, but it has also to be supported by the organizational structures and activities at the school level. It is a task of the school to create workplace conditions and a school culture through which teachers are stimulated and encouraged to give attention to pupils with educational problems (Vandenberghe, 1990). The extension of the special needs provision, as it is also a matter at the school level, assumes a professional relationship among teachers, principal, parents and school advisory services. It implies new skills and forms of collaboration. Therefore, the school is not a place where only pupils should learn, but also a place where teachers must have the opportunity to learn (Smylie, 1994, 1995, 1996). As Sarason (1990) clearly points out: "It is virtually impossible to create and sustain over time conditions for productive learning for students when they do not exist for teachers" (p. 144-145). Therefore, it is necessary that -since new skills are demanded of the teachers (Verloop, 1995)- learning opportunities and learning space must be established to support the professional development of the teachers (Clement, 1995). In short, if one wants to improve the professional quality of the teacher, on has also to improve the quality and the supportive nature of the working conditions of the school (Vandenberghe, 1992).

2.2 Conceptual model

Our conceptual model is based on some starting points that can be situated in two clusters of concepts (see 2.2.1 and 2.2.2). The first cluster encloses the key-players that play a significant role in the realization of the diagnostic en remedial tasks on a school, namely the individual teacher, the school team and the principal. The second cluster is about the dimensions that are present for every key-player: the organizational characteristics, the opinions and beliefs of the key-players and their specific activities. In a final step, we integrate the two clusters (see 2.2.3).

2.2.1 The cluster 'teacher-principal-school team'

A well developed system of care for children with educational and learning problems manifests itself as well on the school level as on the classroom level. On the classroom level it is expressed in the work of the individual teacher. The teacher is a first key-player. On the school level we make a distinction between two other key-players: the principal and the school team. In summary, we have distinguished three essential key-players: the teacher, the principal and the school team.

Within this cluster of concepts, there is first an essential distinction between the school level and the classroom level. As well elements on school level as elements on classroom level play an important part in the realization of the diagnostic and remedial tasks of a school. On the one hand these tasks are a matter of the school as an organization. If there are no steps taken place at the school level, the care for children with pedagogical-didactical problems is (almost) exclusively depending on the efforts and knowledge of the individual teachers. Special efforts and activities by the individual teacher can only have effect, if there are supporting structures and procedures existing at the school level. These structures and procedures create the conditions under which diagnostic and remedial teaching can take place in the classroom.
Complementary to the school level, activities at the classroom level are equally important. It is very well possible that there is a system of care for pupils with problems, but that real help fails when it has to be realized in the classroom. Or it is also possible that there is no such system on school level, but that this lack is relieved by the spontaneous care of the teacher based on personal initiatives and efforts.
It is obvious that the classroom level and the school level are closely interrelated. The two definitions we gave, explicitly mention those two levels (see above). As well the distinction as the interaction are important in understanding the realization of the special needs provision. The interplay between school level and classroom level determine the efficiency of the extension the special needs provision in a school (Gielis & Gerits, 1989).

As already indicated, at these two levels there are several key-players that are important in realizing the care for children with educational problems. At the classroom level it is the individual teacher. This can be a class teacher, a remedial teacher or a peripatetic teacher. At the school level we distinguished two key-players: the principal and the school team. The principal has an essential role (Gielis & Gerits, 1989; Staessens, 1991a; van de Grift, 1987). The principal may have an initiating and supportive influence on the individual teacher and on the school team. He/she can for example create the necessary structures and provide supportive procedures. Furthermore, the beliefs and opinions (for instance about the necessity of special arrangements for pupils with learning problems) of the principal are important in realizing the diagnostic and remedial capacities of the school.

Naturally, the school team is very important. One can only establish special needs provision for all grades if the individual efforts by teachers and principal are also supported by a team. This school team is therefore an important unit of intervention aimed at continuous change and amelioration of the education.

Figure 1 shows the three different key-players.

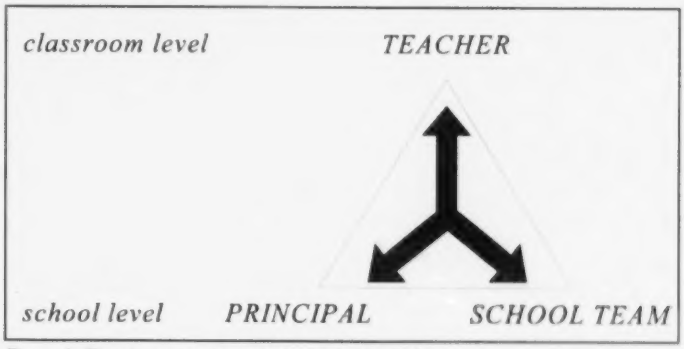

Figure 1. The cluster teacher-principal-school team".

2.2.2 The cluster 'beliefs/opinions-organization-activities'

For each of the three key-players there are three different dimensions that are equally important for establishing diagnostic and remedial tasks. Within this cluster, we have made a distinction between the organizational aspects on the one hand and the actual activities and actions on the other hand. With the former we mean the organizational procedures that has been developed: the structures that are created (e.g. team meetings), the arrangements that are being made among teachers and the way everything is being organized within a classroom are aspects of the organizational dimension that manifests itself at classroom and school level.

The activities-dimension concerns the specific actions of the teacher, principal and school team in order to prevent, remedy or limit pedagogical-didactical problems. The cooperation among teachers, the concrete actions for continuity between grades are examples of the activities of the school team. The most important activities of the teachers -in the perspective of the studied issue- are related to the detection, the analysis and to remediation of learning problems. As far as the principal is concerned, initiating, supporting and following up the diagnostic and remedial tasks are elements of this activities-dimension.

Finally, the beliefs and opinion about the usefulness and content of the special needs provision determine very much what is done at both levels. This concerns the beliefs and opinions as well of the teachers, as of the principal and of the school team (beliefs of the school team about the essential tasks of a school evolve to a school concept). These beliefs influence several actions and organizational procedures concerning the care for children on a school. Opinions about the attainability en usefulness for special needs provision in ordinary education are therefore an essential part of the diagnostic en remedial capacity of a school.

Figure 2 shows the three dimensions of the second cluster.

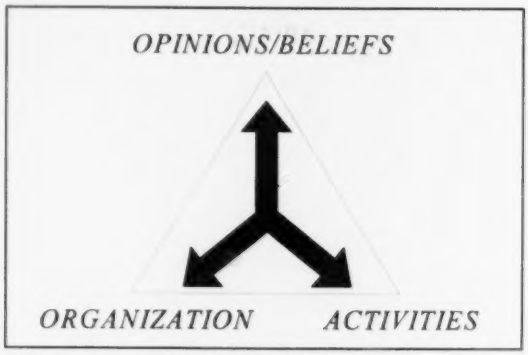

Figure 2. The cluster "opinions/beliefs-organization-activities".

2.2.3 Integration of the two clusters

As well the organization, as the activities and the beliefs/opinions are present for the three key-players of the first cluster. For example, with regard to the school team, one can distinguish an organizational, an activities and a beliefs/opinions dimension. The same goes for the teacher and for the principal. When combining the two cluster, we become a scheme with nine fields.

Scheme 1. Integration of the two clusters into a 9-fields-scheme.

	CLASSROOM LEVEL	SCHOOL LEVEL	
	TEACHER	SCHOOL TEAM	PRINCIPAL
BELIEFS/OPINIONS			
ACTIVITIES			
ORGANIZATION			

The 9 fields were used as a framework during the construction of the questionnaire. The different variables, indicated in previous research as important for understanding the diagnostic and remedial capacity of primary school, were classified in the 9 fields (see scheme 2).

3. Research design

3.1 Construction of the questionnaire

Given the aims of this study, we have decided to develop a written, closed questionnaire. This offers certain advantages. A standardized questionnaire is easy to administer to a large sample, and is very suitable if the number of variables is high (Swanborn, 1987). Furthermore, the data gathered by such an instrument are easy to quantify and to analyse. Finally, repeated administrations or periodic assessments become possible. Such a questionnaire is in this respect appropriate (Janssens, 1988).

When defining the variables, we relied on already developed questionnaires for related issues and on the literature concerning special needs provision (D.V.O., 1994; Gielis & Gerits, 1989; Huistra, 1980; Span, 1990). We have placed the variables in the described conceptual model (2.2.3). We believe that these variables play an important role in the diagnostic and remedial capacity of a primary school.

Scheme 2. The variables concerning the care for pupils with educational problems.

	CLASSROOM LEVEL	SCHOOL LEVEL	
	TEACHER	SCHOOL TEAM	PRINCIPAL
BELIEFS/OPINIONS	- Opinions/beliefs of the teacher	- School concept	- Opinions/beliefs of the principal
ACTIVITIES	- Detecting - Analysing - Remediation	- Continuity	- Initiating and supporting
ORGANIZATION	- Classroom organization		- Structures - Procedures

For each variable, several items were created. Each item consists of a statement followed by a 6 point Likert scale, ranging from "does not apply at all" to "does very well apply". The respondent has to indicate for each statement to what extend it is so for him/her. We have deliberately chosen for an even numbered scale to avoid neutral 'escape'-answers (Billiet, 1992; Swanborn, 1982). Figure 3 shows the scale:

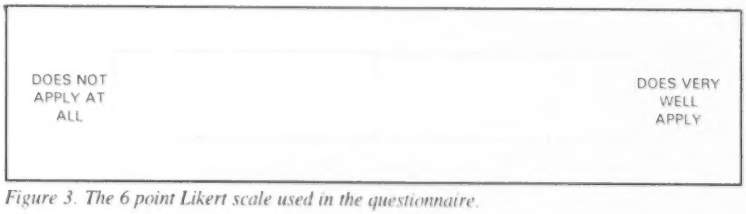

Figure 3. The 6 point Likert scale used in the questionnaire.

The questionnaire was divided into two parts: 'my school' and 'my classroom' according to the school and classroom level in our conceptual model. Items related to the school level were always separated from the

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items for the classroom level. Within each part however, the items were randomly placed, regardless of the variable they belonged to.

Given the topicality of the investigated matter, there is a real possibility that a number of items would be socially desirable answered. Therefore, actions were undertaken to prevent this. Items within each part ('our school' and 'my classroom') were placed randomly. Further, as well 'positive' as 'negative' statements concerning care for pupils with pedagogical-didactical problems were administered to avoid a response-set (Bartelds, Jansen, & Joostens, 1989; Bartelds, Kluiter, & van Smeden, 1978; Billiet, 1990, 1992; Billiet, Loosveldt, & Waterplas, 1984, 1988; Segers, 1987; Sudman, & Bradburn, 1987; Swanborn, 1982, 1987). Finally, items that have proven to be socially desirable in the preliminary inquiries were deleted. For this selection, the means and the variances of the items were used as indicators. Items with a low variance and extreme mean can indicate a socially desirable answer.

Respondents were the class teachers, remedial teachers, and the principals. It is important to make a distinction between the respondents, the people who fill out the questionnaire and the research elements, in our case the school (Janssens, 1988; Knapp, 1982; Segers, 1987). Billiet (1992) uses the terms research units (according to research elements) and observation units (according to respondents). Although teachers (class and remedial) and principals fill out the questionnaire and therefore are the observation units, the focus of our research is not their individual care for pupils with pedagogical-didactical problems, but we are foremost interested in het diagnostic and remedial capacity of the school. So, the research unit is the school.

Three different versions of the questionnaire were created for the three different groups of respondents. The versions for class and remedial teachers are for the most part the same, except some items about classroom activities. The questionnaire for the principal consists only of the items related to the school level, except for the items about the principal. These items were also left out.

The development of the questionnaire is empirically supported by a pilot study with teachers and educationalists and by a preliminary study in eleven schools. In this pilot study, the clarity of the questionnaire (lay-out, instructions, concepts) and the meaningfulness of the items were the focus of attention. In the preliminary study, we looked at the means and variances of each item. On grounds of this, the questionnaire was changed and adapted. We withheld 71 items for the school level and 77 items for the classroom level (for a elaborate description we refer to Maes, Luyckx, Vandenberghe, & Ghesquière, 1996).

3.2 Research plan

Taking into consideration the aims of the study, it is important to look at the relationships (in this case: correlations) between the scales of the questionnaire and other variables. First of all we will look at the relations between the scales of the developed questionnaire and the scales of existing questionnaires. With the study of these relations we investigate the construct validity of the newly developed questionnaire. We chose as validating scales the scales of the *Professional Culture Questionnaire for Primary Schools* (Staessens, 1991b) and the *Teaching Orientation Questionnaire* (Centrum voor Onderwijsbeleid en -vernieuwing, 1990, 1991a, 1991b).

Besides these relations, we were also interested in the relations with some background variables. These background variables may give evidence of the way the diagnostic and remedial capacity is or is not realized. These background variables consists of school, principal, teacher, classroom and pupil characteristics. Although these relationships between background variables and scales were an explicit aim of the study, we will not these results in this paper.

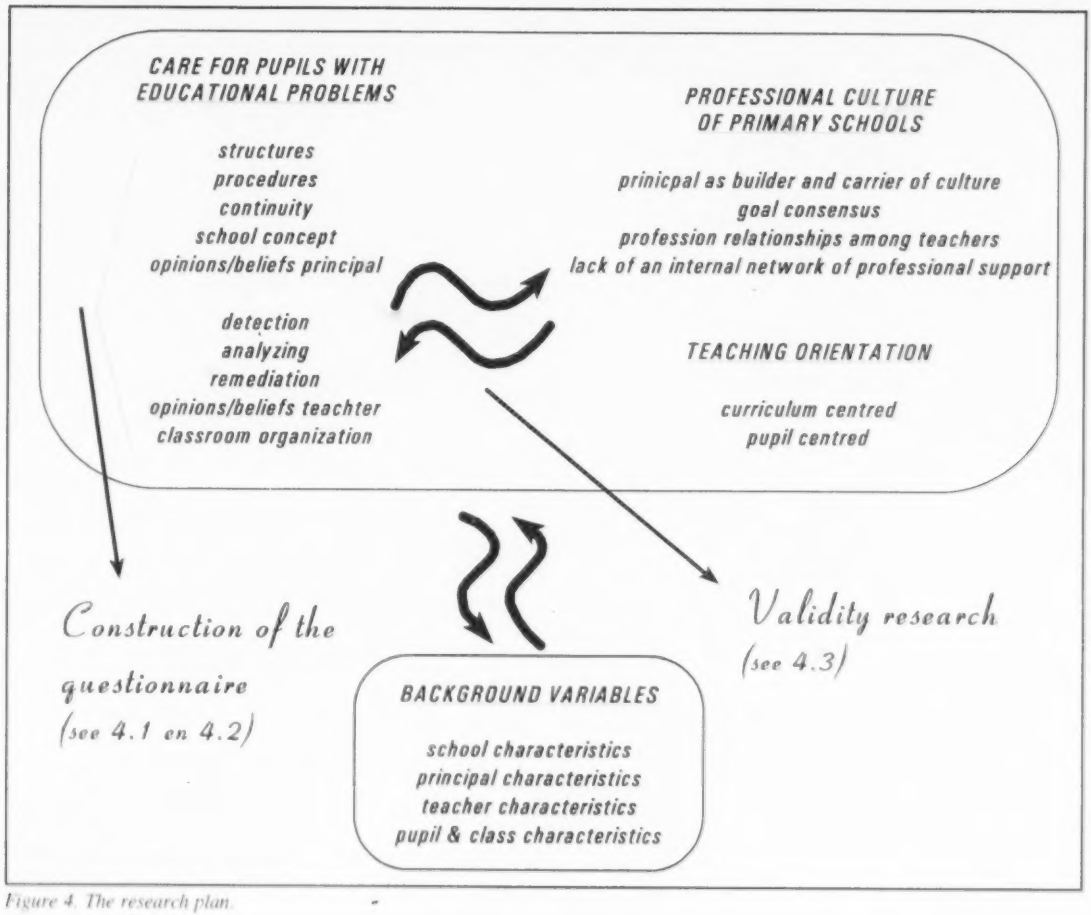

Figure 4. The research plan.

3.3 The main study

Based on the complete population of primary schools in the Dutch speaking part of Belgium, we have drawn a stratified sample of 150 schools. This sample is representative for school size, education sector, educational level and geographic location. These 150 schools have been contacted and 104 agreed to cooperate. This 104 schools are also representative for the described population characteristics. All principals, class and remedial teachers of these 104 school received a questionnaire. All questionnaires were send to the principal who was responsible for the dissemination among the teachers. All respondents could individually return the questionnaire directly to us.

In total, 1305 questionnaires were send of which 1110 for class teachers, 104 for principals and 91 for remedial teachers. In total 688 of the 1110 questionnaires for class teachers were returned (62%), 86 of the 104 questionnaires for principals (82,7%) and 70 of the 91 questionnaires for remedial teachers (76,9%), together this is 844 of 1305 questionnaire or 64,7%. Taking into account that it is a rather elaborate, written questionnaire, these response rates are very good.

The sample of teachers (class and remedial) that returned the questionnaire does not differ from the population as far as the characteristics 'age', 'status' and 'job'(full time or part time) is concerned. We did find differences for the characteristics 'gender', 'geographical location' and 'educational sector'. It is not surprising that our sample of teachers is not representative for all characteristics. We stratified our sample on school characteristics, not on teacher characteristics. That is most probably the reason why there are some differences. The sample of principals doesn't differ for any of the described characteristics from the population.

In order to aggregate the data from the individual respondents, only the data of those schools were retained of which we had received at least 50% of the questionnaires for class teachers *and* the questionnaire from the principal. This was the case for 65 schools. This sample of 65 schools is also representative for the population.

4. The questionnaire: reliability and validity

For the final construction of the 'Care for pupils with educational problems'-questionnaire, we only used the questionnaire for class teachers because we needed a large number of respondents for an acceptable analysis. The groups of 688 class teachers will meet this demand. The 'Care for pupils with educational problems'-questionnaire was, as already indicated, divided in two parts: one part with items for the school level ('our school') and the other part with items for the classroom level ('my classroom'). We retained this distinction in further analyses and construction of the questionnaire. That is why we made a distinction between the parts 'Care for pupils with educational problems: school level' (see 4.1) and 'Care for pupils with educational problems: classroom level' (see 4.2).

4.1 The questionnaire 'Care for pupils with educational problems': school level

4.1.1 Mean and standard deviation of the items

Over all, the means of the items are not extreme and the standard deviations not too small. Therefore, all 71 items were kept for further analysis.

4.1.2 Factor analysis and item analysis

A principal factor analysis with varimax rotation was performed on the 71 items of the questionnaire (school level) (Fontaine, 1997; Tacq, 1992). A six factor solution was retained. This six factor solution explains 32% of the total variance. In table 3, we describe the six factors and we calculated the contribution for each factor according to a global mutual variance of 100%.

Table 1. Factors, description and proportion of explained variance after a principal factor analysis with varimax rotation of the 71 items of the 'Care for pupils with educational problems'- questionnaire on school level.

FACTOR	DESCRIPTION	PROPORTION EXPLAINED VARIANCE
Factor I	The principal and the shared concern for pupils with educational problems	23%
Factor II	Structural deliberation and registration	22%
Factor III	Lack of care for pupils with educational problems	16%
Factor IV	Cooperations with educational guidance centres and parents	15%
Factor V	Across classroom initiatives and coordination	13%
Factor VI	Continuity	11%

These factors are retained. We consider all items with a factor loading above |.20| as part of that factor[3]. After investigation of the factor matrix, 9 items were left out and 7 items were moved from factor (for justification, see Maes, Vandenberghe, & Ghesquière, 1997). On grounds of this adjusted arrangement, we calculated the coefficient of reliability (Cronbach's α) for each scale.

Table 2. The six scales, description, number of items and the Cronbach's α for the 'care for pupils with educational problems'-questionnaire on school level.

SCALES AND DESCRIPTION	NUMBER OF ITEMS	CRONBACH's α
S1: The principal and the shared concern for pupils with educational problems	15	0.89
S2: Structural deliberation and registration	13	0.86
S3: Lack of care for pupils with educational problems	11	0.77
S4: Cooperations with educational guidance centres and parents	8	0.72
S5: Across classroom initiatives and coordination	10	0.73
S6: Continuity between grades	5	0.71

4.1.3 Description of the scales

S1) The principal and the shared concern for pupils with educational problems

A score on this scale indicates to what extend the teachers think that the principal considers the care for pupils with educational problems to be a priority for the school, believes that this must have special attention and actively takes initiatives or support initiatives concerning the care for pupils with educational problems. There is also explored to what degree the principal communicates his/her ideas to the school team and to the individual teacher.

Besides this, in this scale we look to what extend there is a shared goal-orientation for making the care for pupils with educational problems a school priority. Is the care for pupils with educational problems seen as a shared responsibility and is this care for every teacher a priority? Is it a topic of conversation and thought? Is the principal an initiator and supporter of this goal-orientation?

S2) Structural deliberation and registration

This scale shows if there is any form of deliberation in the school and to what extend this deliberation is structural. This means: does it take place regularly, are all the persons concerned present, is it prepared properly, are the conclusions written down in pupil records, and so on. Are there team meetings and/or multidisciplinary deliberations? Are the intervention efforts and evolutions being discussed? Are important decisions discussed in meetings and are they taken in consideration? Furthermore, there is probed if the evolutions of pupils are registered in order to have functional deliberations. Are pupils screened and their improvements being registered? Is there a pupil monitoring system? Are standardized tests used to look at the progress of pupils?

S3) Lack of care for pupils with educational problems

This scale shows if there are indications that the care for pupils with educational problems is *not* a priority

[3] Although the choice of the magnitude of the factor loading, on grounds of which an item is retained, is arbitrary, the criterium is mostly set on |.30|. Because of the magnitude and complexity of the questionnaire, we deliberately chose to lower this criterium in order to have more meaningful items in each scale.

for the school. It is therefore a negative oriented scale. This means that this scale should correlate negatively with the other scales. This scale concerns a broad spectrum of indications that the care for pupils with educational problems is not the focus of attention, that it is not a school priority. Are pupils allowed to a next grade so the school does not lose a pupil? Is every teacher isolated or on his own and is there ample deliberation? If there is deliberation, it is often superficial. There is a lack of material and the pupil records do not exist or are not accessible for teachers.

S4) Cooperation with educational guidance centres and parents

In this scale, the cooperation between the school and the educational guidance centre (Psychological, Medical and Social guidance centre, P.M.S.-centre) on one hand and the collaboration between the school and the parents on the other hand are assessed. This scale clearly consists of two elements. The scale shows to what extend the cooperation with the P.M.S.-centre is as well aimed at making a diagnostic investigation as supporting pupils and teachers regarding the care for pupils with educational problems. Beside the cooperation with the P.M.S.-centre this scale indicates wether information is given to and received from parents.

S5) Across classroom initiatives and coordination

This scale indicates wether or not across classroom initiatives are taken place and wether or not external or between class differentiation by means of across classroom ability groups takes place in the school. Is there collaboration across classrooms? Do teachers work with across classroom ability groups? Is there a form of deliberation about the grouping arrangement?

Beside this differentiation, this scale is also about the support by a remedial teacher or peripatetic teacher. Is there a remedial teacher who is involved in the care for pupils with educational problems? Can pupils with educational problems from every grade be helped by a remedial teacher? Is there someone who can take over the classroom in order to work specifically with pupils with educational problems?

S6) Continuity between grades

This scale assesses first of all the nature of the information that is passed on from one grade to another. Next, it is also about the continuity regarding used methods over the grades. We limited the items to the continuity within a school, not between schools. What kind of information is exchanged about pupils: only evaluation data or also information about problems and about special interventions.

4.2 The questionnaire 'Care for pupils with educational problems': classroom level

4.2.1 Mean and standard deviation of the items

With exception of 4 items, the means of the items at the classroom level are not extreme and the standard deviations not too small. Those 4 items (of the 77 of the part 'classroom level') were left out because of their extreme mean and their standard deviation that is too small. All other items (73) were kept for further analysis.

4.2.2 Factor analysis and item analysis

A principal factor analysis with varimax rotation was performed on the 73 items. A 4 factor solution was retained. This solution explains 20% of the total variance. In table 5, the 4 factors and the contribution for each factor according to a global mutual variance of 100% are presented.

Table 3. Factors, description and proportion of explained variance after a principal factor analysis with varimax rotation of the 71 items of the 'Care for pupils with educational problems'-questionnaire on classroom level.

FACTORS	DESCRIPTION	PROPORTION EXPLAINED VARIANCE
Factor I	Diagnostic and remedial teaching	33%
Factor II	Support and cooperation	26%
Factor III	Opinions/beliefs of the teacher	23%
Factor IV	Within classroom differentiation	18%

Here also, a similar way of working was used as with the factors for the school level and some adjustments were made. After investigation of the factor matrix, 12 items were left out and 2 items were moved to another factor (for justification, see Maes, Vandenberghe, & Ghesquière, 1997). Eventually, we kept 61 items for further analysis.
Furthermore, because they matched better concerning content with the items of the factor they moved to and also had a factor loading above |.20| on that factor. On grounds of this adjusted arrangement, we calculated the Cronbach's α-coefficients for each scale.

Table 4. The four scales, description, number of items and the Cronbach's α for the 'Care for pupils with educational problems'-questionnaire on classroom level.

SCALES AND DESCRIPTION	NUMBER OF ITEMS	CRONBACH's α
K1: Diagnostic and remedial teaching	21	0,81
K2: Support and cooperation	13	0,77
K3: Opinions/beliefs of the teacher	17	0,76
K4: Within classroom differentiation	10	0,70

4.2.3 Description of the scales

K1) Diagnostic and remedial teaching
This scale contains items that mainly are about the several steps we have discussed earlier: detecting, analysing and remediation learning problems. In this scale it is in other words firstly about the detection of pupils with learning problems. We try to investigate the presence of instruments for detecting problems and the sensitivity of the teacher for educational problems. Second, there are items about the further exploration of the nature of the behaviour, where one is focused in collecting specific information to determine the exact nature of the problem. Thirdly, there are items about the remediation of the problems.

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K2) Support and cooperation

Although this scale is situated at the classroom level, it is closely related with variables at the school level. However, the point of view is different. This scale assesses to what extend the individual teacher feels himself/herself supported by colleagues, guidance centres (P.M.S.-centres) and others; to what extend also the teacher feels that he/she is involved in deliberations, receives information, gives information and so on. Is the teacher being updated about diagnostic investigations? Does the teacher take steps to collect some information from guidance centre, parents, colleagues?

K3) Beliefs/opinions of the teacher

This scale concerns the beliefs and opinions of the teacher about his/her abilities and about the capacity of the school to help pupils with educational problems. It mainly contains items about the perceived expertise and abilities of the teacher. In other words, we try to assess how a teacher sees his/her expertise and that of the school regarding the care for pupils with educational problems. Furthermore, there are some items about the possibilities and limits of remedying pupils with educational problems in the classroom, about extending special needs provision in ordinary education, about the special education, and so on.

K4) Within classroom differentiation

This scale assesses to what extend the teacher differentiates within his/her classroom (within classroom or internal differentiation). It is about differentiating regarding the number of given tasks or assignments, the difficulty of tasks, the contents of the tasks, the way of evaluating and the way the teacher organizes his/her classroom in order to enhance individual and independent work for the pupils.

4.3 Validity

Our study of the validity of the questionnaire is aimed as well on the content validity as on the construct validity and the external validity in terms of coherence with qualitative data. Submitting the questionnaire to educational experts and experts in the field and justifying certain choices on grounds of literature were done to guarantee the content validity. Construct validity comprehends the question wether an instrument (or a scale) can be sufficiently considered as a measure or indicator of a theoretical construct or notion. In order to assess the construct validity we will calculate the correlation with other constructs (scales from existing questionnaires) (see 3.2 Research plan). Therefore, we first give the titles of the scales (with code) that are used as validating constructs.

Professional culture of primary schools

C1: The principal as builder an carrier of culture

C2: Goal consensus

C3: Professional relationships among teachers

C4: Lack of an internal network of professional support

Teaching Orientation

O1: Curriculum centred

O2: Pupil centred

Table 5. Correlation matrix of all scales of the questionnaires 'Care for pupils with educational problems', 'Professional culture of primary schools' and 'Teaching orientation' calculated for schools (n=65).

	S1	S2	S3	S4	S5	S6	K1	K2	K3	K4	C1	C2	C3	C4	O1	O2
S1		.70*	-.73*	.47*	.60*	.46*	.23	***.60****	.37*	.10	***.86****	***.75****	.68*	-.56*	-.02	.48*
S2			-.74*	.66*	.59*	.31*	.30*	***.74****	.24	-.09	.48*	.37*	.45*	-.28*	-.17	.39*
S3				-.67*	-.57*	-.51*	-.14	***-.72****	-.38*	.04	-.60*	-.53*	-.64*	.54*	.20	-.50*
S4					.46*	.28*	.17	***.67****	.12	-.28*	.38*	.24	.30*	-.16	-.16	.20
S5						.16	-.02	***.54****	.39*	-.01	.40*	.39*	.45*	-.28*	-.14	.31*
S6							.46*	***.52****	.23	.25*	.35*	.49*	.52*	-.52*	-.12	.38*
K1								.44*	.34*	.15	.10	.18	.24	-.05	.15	.13
K2									.33*	-.08	***.42****	***.45****	***.64****	***-.39****	-.10	***.50****
K3										.21	.34*	.36*	.37*	-.25*	-.10	.25*
K4											.03	.16	.10	-.18	***-.28****	.16
C1												.70*	.55*	-.53*	-.01	.40*
C2													.73*	-.80*	.04	***.56****
C3														-.69*	-.08	***.68****
C4															.09	-.53*
O1																-.22
O2																

** is significantly different from 0, $p < 0,05$*

Firstly, of the scales of the questionnaire 'Care for pupils with educational problems' (S1-S6, K1-K4) there are the striking high correlations between on one hand the scale K2 ('Support and cooperation') and on the other hand the scales of the same questionnaire on school level (S1-S6). This indicates that this scale (K2), although it is situated at the classroom level, very well matches with the scales at the school level.

As far as the correlation between the scales of the developed questionnaire and the scales of the existing questionnaires is concerned, we notice the high positive correlations between S1 ('The principal and the shared concern for pupils with educational problems') on one hand and C1 ('The principal as builder and carrier of culture'): r=0,86 and C2 ('Goals consensus'): r=0,75 on the other hand. This is in the line of the expectations.

Furthermore, there are high correlations between all the scales at the school level (S1-S6, C1-C4). The correlations with the negative oriented scale C4 ('The lack of an internal network of professional support') are negative, except of course for the scale S3 ('Lack of care for pupils with educational problems') which is also negative oriented.

K4 ('Within classroom differentiation') has a only significant correlations with S4 ('Cooperation with educational guidance centres and parents'), S6 ('Continuity') and O1 ('Curriculum centred'). The latter is very understandable.

The scales of the questionnaire 'Professional culture of primary schools' have high correlations with nearly all other scales. The exceptions are S4 ('Cooperation with educational guidance centres and parents'), perhaps because this scale contains more school external aspects, K1 ('Diagnostic and remedial teaching'), K4 ('Within classroom differentiation') and O1 ('Curriculum centred teaching orientation'). The latter are all clearly classroom internal aspects.

The scale O1 ('Curriculum centred teaching orientation') has only one significant correlation (negative). This is with the scale K4 ('Within classroom differentiation'). This confirms the construct validity of the scale (K4). The scale O2 ('Pupil centred teaching orientation') has several significant correlations (certainly compared to O1) with as well scales at the school level as scales at the classroom level. This indicates that

the degree of being pupil centred is closely related with variables that are about cooperation and support and therefore are closely linked to variables at the school level: S1-S6 (with exception of S4), K2 ('Support and cooperation') and K3 ('Opinions and beliefs of the teacher') (both classroom scales are related to the school level) and all school culture scales.
All things considered, we may say that the correlations between the scales of the developed questionnaire and the scales of the existing questionnaires mainly confirm the construct validity[4].

Finally, we investigated the validity of the data by comparing them with qualitative data, collected in 4 schools. Interviews were taken from 3 teachers and principals of each school. The specific methodology used exceeds the purposes of this paper. We limit ourselves by saying that the qualitative data very well match the scores of the quantitative date (i.e. the scores on the scales of the questionnaire (Maes, Vandenberghe, & Ghesquière, 1997).

[4] For the investigation of the construct validity of the scales at the classroom level (K1-K4), the correlation matrix calculated for teachers (n=688) is more advisable. After all, these scales contain elements that are linked with the teachers themselves, more than with the school. The matrix based on teachers confirms the construct validity of the scales even better.

5. Standardization of the questionnaire

We have chosen to standardize the scores of the scales of the questionnaire 'Care for pupils with educational problems' in two ways. First, we want to make a comparative or relative standardization. In other words, we want to establish norms based upon our reference group. This reference group is the 65 schools that represent the population of primary schools in the Dutch speaking part of Belgium. So it becomes possible to situate one specific school compared to the reference group. Secondly, we want to create an absolute reference point for each scale based upon a study with the education inspectorate in order to obtain an absolute criterion.

5.1 Comparative standardization

In order to standardize scale scores in a relative way, percentiles have to be calculated. Each percentile indicates what proportion of the scores is underneath the score that corresponds to this percentile. These percentiles have been calculated for each scale based upon the reference group of primary schools (Maes, Vandenberghe, & Ghesquière, 1997).

5.2 Absolute standardization

By means of a comparative standardization, is becomes possible to compare the scores to the reference group, but it is nevertheless a surplus if the scores can be compared with a criterion. This criterion though, has to be chosen very carefully and has to be meaningful in order to have a surplus value to the comparative standardization. Because of this reason, we have submitted the questionnaire to the education inspectorate for primary education of the Flemish community.
A questionnaire (class teachers-version) was send to all inspectors of the primary education. This questionnaire was identical to the one the class teachers received in the final study, with the exception that in the questionnaire for inspectors the background questions and the questionnaires 'Professional culture of primary schools' and 'Teaching orientation' were left out. Furthermore, some pages with specific instructions and background questions were added.
All inspectors were asked to draw a line for each item. With this line, the inspector indicates that a score above this line would be considered as a positive indication by him/her for the care for pupils with educational problems. A score under this line is a negative indication. Because some items were formulated negatively concerning content, we have also asked to add an arrow (pointing to the left or the right) to this line to indicate wether they considered this a negative or a positive item. Of the 67 questionnaires, 54 (81%) were returned. Of the 54, 42 were filled out as they were supposed to and were retained for further analysis.

Based upon the answers of the inspectors, means and standard deviations were calculated for each scale in the exact same way we did for the schools. Table 8 shows us the means and standard deviations for each scale for the education inspectorate on the one hand and for the schools on the other hand. A t-test was performed to determine if the means differ significantly. The means based upon the answers of the inspectorate are the absolute criterion we were looking for.

Table 6. Means and standard deviations of the scales of the questionnaire 'Care for pupils with educational problems' for school (65) and inspectors (42) with a t-test to determine if the means differ significantly.

SCALE	SCHOOLS (65)		INSPECTORATE (42)		T-TEST		
	Mean	Standard deviation	Mean	Standard deviation			
S1	4,43	0,67	4,95	0,49	t(105)= - 4,334	p= 0,00	*
S2	4,36	0,76	4,87	0,58	t(105)= - 3,705	p= 0,00	*
S3	2,29	0,53	1,81	0,71	t(105)= 3,996	p= 0,00	*
S4	4,68	0,54	4,64	0,71	t(105)= 0,330	p= 0,74	
S5	3,24	0,74	4,34	0,48	t(105)= - 8,536	p= 0,00	*
S6	5,03	0,43	5,06	0,70	t(105)= - 0,275	p= 0,78	
K1	4,58	0,29	4,69	0,65	t(105)= - 1,195	p= 0,24	
K2	4,00	0,46	4,61	0,54	t(105)= - 6,253	p= 0,00	*
K3	3,74	0,33	4,60	0,44	t(105)= - 11,529	p= 0,00	*
K4	3,59	0,41	4,81	0,69	t(105)= - 11,476	p= 0,00	*

** These means differ significantly.*

We may say that the means of schools does not differ from that of inspectors (the criterion) for 3 scales: 'Cooperation with educational guidance centres and parents' (S4), 'Continuity (S6) and 'Diagnostic and remedial teaching' (K1). For all other scales, the mean of the schools differs significantly from the criterion. In figure 5, the scale means of the schools ('the bars') are graphically compared with the criterion derived from the inspectorate (the line 'inspectorate').

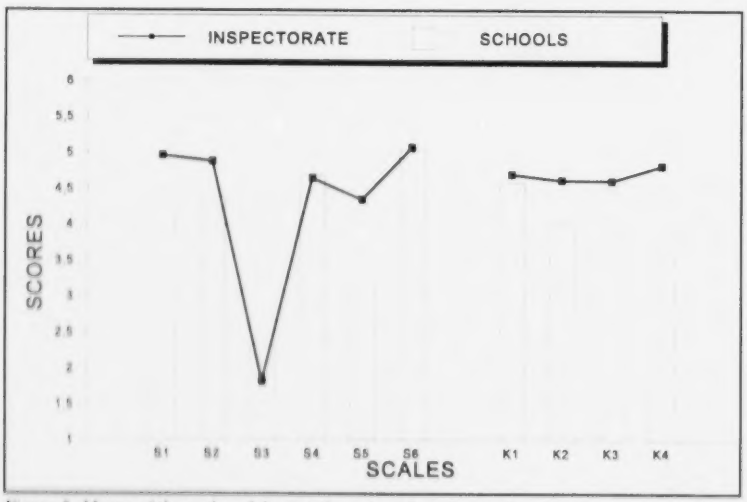

Figure 5. Means of the scales of the questionnaire 'Care for pupils with educational problems' for schools (65) and inspectors (42).

In figure 5, we observe that the mean of the schools for three scales is largely below the criterion. This is so for the scale 'Across classroom initiatives and coordination' (S5), 'Opinions/beliefs of the teacher' (K3) and 'Within classroom differentiation' (K4). Of course, there is variation in the means of the schools. So there are in fact some schools that do reach the criterion of the inspectorate. To see how many schools reach this criterion, we determined for each scale which percentile corresponds with the criterion. This way, we can see how many schools of the reference group have scores under, and how many schools have scores above the criterion. Table 9 shows the results. For reasons of clarity, we give next to the percentiles the

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exact proportion of schools that reach the criterion. One has though to take into account that S3 ('Lack of care for pupils with educational problems') is a negative scale. In other words, a score below the criterion is in this case a positive score concerning the care for pupils with educational problems.

Table 7. For each scale, the percentile that corresponds to the criterion of the inspection (based on norms of schools) and the percentage of schools that reach the criterion.

SCALE	PERCENTILE	PERCENTAGE OF SCHOOLS THAT REACH THE CRITERION
S1	pc. 82	18 %
S2	pc. 74	26 %
S3	pc. 16	16 %
S4	pc. 33	67 %
S5	pc. 96	4 %
S6	pc. 43	57 %
K1	pc. 66	34 %
K2	pc. 93	7 %
K3	pc. 100	0 %
K4	pc. 100	0 %

In a different way, we can see that only a few or none of the schools reach the criterion for the scales: 'Opinions/beliefs of the teacher' (K3), 'Within classroom differentiation' (K4) and 'Across classroom initiatives and coordination' (S5). This is also the case for 'Support and coordination' (K2). Furthermore, the majority of schools reach the criterion for the scales 'Cooperation with educational guidance centres and parents' (S4) and 'Continuity' (S6)[5].

[5] The reason why 'only' 34% of the schools reach the criterion for K1 ('Diagnostic and remedial teaching'), although the mean does not differ significantly from the criterion, is because the response distribution is not a normal distribution. It is not symmetrical and therefore the median is not the same as the mean.

Conclusions

This questionnaire allows to assess the diagnostic and remedial capacity of one or more primary schools by means of scores on 10 scales and their norms. All scales are reliable and valid. Therefore this questionnaire may serve as an instrument in a global assessment study aimed at measuring the diagnostic and remedial capacity of the primary education. Furthermore, by means of this questionnaire it is possible to detect differences between schools or to compare one school with the reference group. Consequently, this questionnaire may be used for more school diagnostic purposes. The results of each school can be represented in a profile of the different scales. This way, the strong and weak points of a school can be mapped. Still, one has to take into account that this instrument, in the context of a school-based review only can serve as a starting point for further analysis.
The questionnaire may therefore be useful for the educational practice (guidance, principals, and so on), the educational policy (including the educational inspectorate) and future research.

The questionnaire has also its limits. It does not enable the user to obtain a detailed insight in the particularity of the care for pupils with educational problems in one specific school and in the processes that give shape to this care. Additional qualitative data to be collected by interviews, visits, observations, and so on are necessary if one wants to obtain a rich and detailed picture of a particular school, certainly if one is interested in specific indications for improving the local educational practice.

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